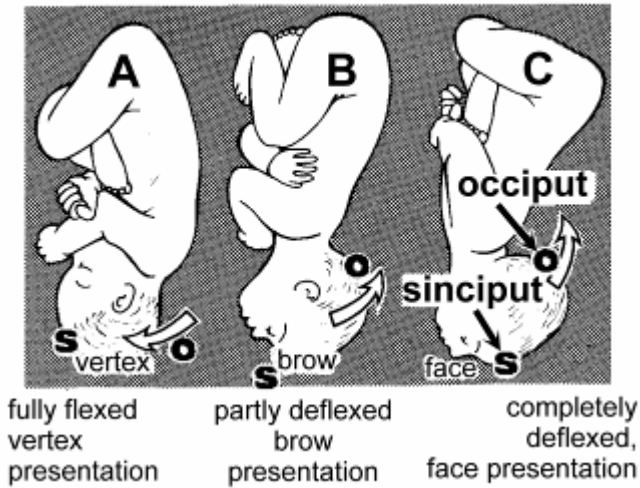


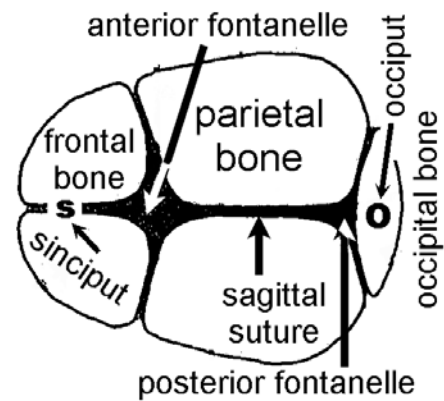
**Malpresentations and malpositions (WHO Pregnancy S-69)**

These can be due to fetal or maternal pathology, which ideally should be diagnosed antenatally if possible.

**Flexion and extension**

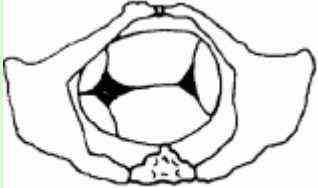




FLEXION AND EXTENSION. Baby A's head is fully flexed on the chest so that the vertex is presenting. Baby B's head is partly deflexed so that the brow is presenting. Baby C's head is fully deflexed so that the face is presenting. Deflexion is another word for the first part of extension. Only A is normal, all the others are abnormal and difficult to deliver unless the baby is very small, especially B.



**Table: diagnosis of malpositions**

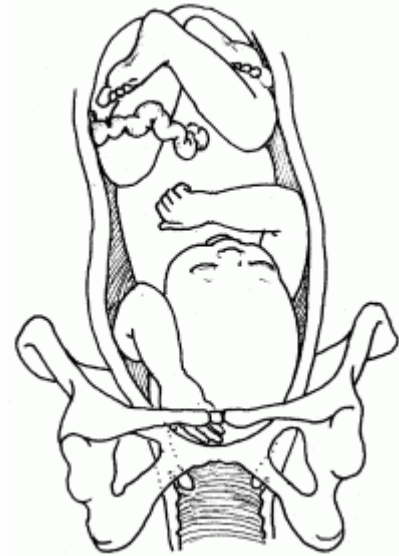
Symptoms and Signs	Figure
<p><b>OCCIPUT POSTERIOR POSITION</b> occurs when the fetal occiput is posterior in relation to the maternal pelvis</p> <p>On <b>abdominal examination</b>, the lower part of the abdomen is flattened, fetal limbs are palpable anteriorly and the fetal heart may be heard in the flank.</p> <p>On <b>vaginal examination</b>, the posterior fontanelle is towards the sacrum and the anterior fontanelle may be easily felt if the head is deflexed.</p>	<p>Occiput posterior</p> <p>Left occiput posterior</p>

Symptoms and Signs	Figure
<p><b>OCCIPUT TRANSVERSE POSITION</b> occurs when the fetal occiput is transverse to the maternal pelvis. If an occiput transverse position persists into the later part of the first stage of labour, <b>it should be managed as an occiput posterior position</b>.</p>	 <p>Left occiput transverse</p>
<p><b>BROW PRESENTATION</b> is caused by partial extension of the fetal head so that the occiput is higher than the synciput</p> <p>On <b>abdominal examination</b>, more than half the fetal head is above the symphysis pubis and the occiput is palpable at a higher level than the synciput.</p> <p>On <b>vaginal examination</b>, the anterior fontanel and the orbits are felt.</p>	
<p><b>FACE PRESENTATION</b> is caused by hyper-extension of the fetal head so that neither the occiput nor the synciput are palpable on vaginal examination.</p> <p>On <b>abdominal examination</b>, a groove may be felt between the occiput and the back.</p> <p>On <b>vaginal examination</b>, the face is palpated, the examiner's finger enters the mouth easily and the bony jaws are felt.</p>	

Symptoms and Signs

Figure

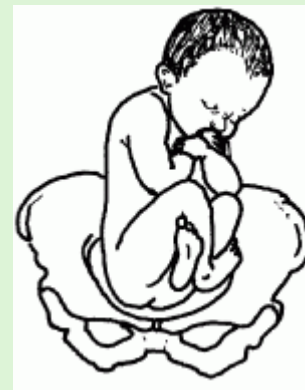
**COMPOUND PRESENTATION** occurs when an arm prolapses alongside the presenting part. Both the prolapsed arm and the fetal head present in the pelvis simultaneously. (WHO Pregnancy S-74 and S-78)



**BREECH PRESENTATION** occurs when the buttocks and/or the feet are the presenting parts. (WHO Pregnancy S-74 and S-79)

On **abdominal examination**, the head is felt in the upper abdomen and the breech in the pelvic brim. Auscultation locates the fetal heart higher than expected with a vertex presentation.

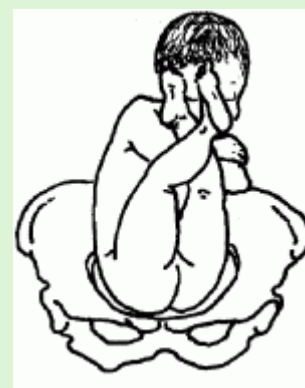
On **vaginal examination during labour**, the buttocks and/or feet are felt; thick, dark meconium is normal.

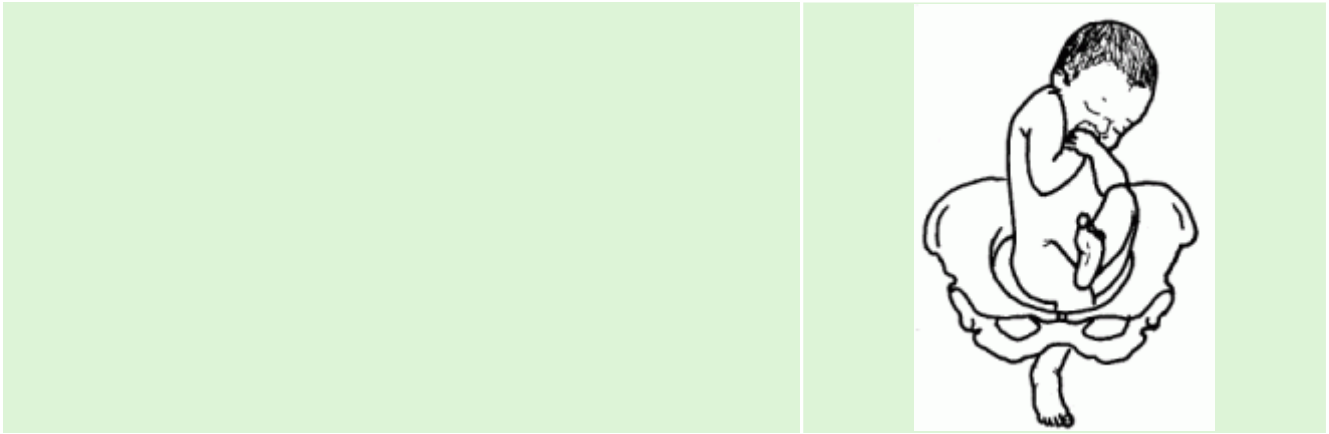


**COMPLETE (FLEXED) BREECH PRESENTATION** occurs when both legs are flexed at the hips and knees.

**FRANK (EXTENDED) BREECH PRESENTATION** occurs when both legs are flexed at the hips and extended at the knees.

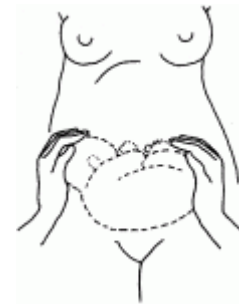
**FOOTLING BREECH PRESENTATION** occurs when a leg is extended at the hip and the knee.





**TRANSVERSE LIE AND SHOULDER PRESENTATION** occur when the long axis of the fetus is transverse. The shoulder is typically the presenting part. (WHO Pregnancy S-75 and S-81)

On **abdominal examination**, neither the head nor the buttocks can be felt at the symphysis pubis and the head is usually felt in the flank.

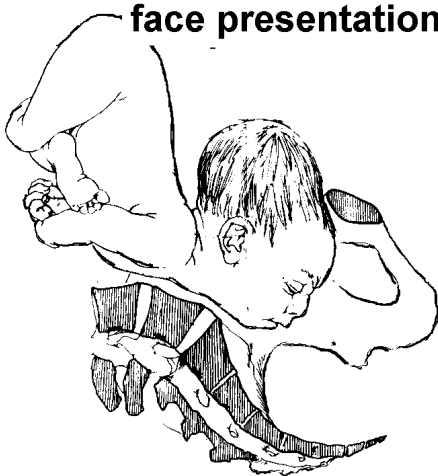


On **vaginal examination**, a shoulder may be felt, but not always. An arm may prolapse and the elbow, arm or hand may be felt in the vagina.

**Face presentation (WHO Pregnancy S-73 and S-77)**

This is due to extension of the fetal neck, either from a fetal abnormality or progression from a deflexed occipital posterior position in labour. Diagnosis is important as it may be mistaken for breech presentation.

**face presentation**



a face presentation

**Risk factors**

Multi-parity, prematurity, multiple pregnancies, loops of cord around the neck, neck tumours, uterine abnormalities, cephalo-pelvic disproportion, fetal macrosomia

**Diagnosis**

On abdominal examination a large amount of the head is felt on the same side as the back.

**Vaginal examination**

In early labour the presenting part will be high. Landmarks are the mouth, jaws, nose, malar and orbital ridges. The presence of alveolar margins distinguishes the mouth from the anus. The mouth and the maxilla (upper jawbone) form the corners of a triangle, while the anus is on a straight line between the fetal pelvic bones. Avoid damaging the eyes by trauma or the use of antiseptics. Ventouse must not to be used.

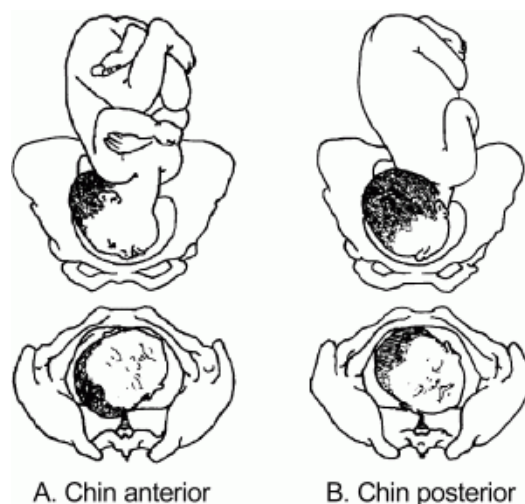
In early labour, particularly with the occipital-posterior position and multiparous patient deflection is common, but in such cases uterine contractions often cause increased flexion and delivery will proceed as normal. If extension occurs however, a brow presentation and finally the fully extended face will result. Most face presentations therefore only become obvious late in labour. If the chin is towards the pubis (mento-anterior) then the baby can often be delivered normally although an episiotomy is usually necessary. If the chin lies towards the back then delivery will not occur and a Caesarean Section will be required.

The widest biparietal diameter is 7cm behind the advancing face, so even when the face is distending the vulva, the biparietal diameter has only just entered the pelvis. Descent is less advanced than VE suggests, even allowing for gross oedema. The head is always higher than you think.

Abdominal examination is vital.

The head is born by flexion, risking considerable perineal trauma – consider an episiotomy.

If spontaneous delivery of a mentoanterior face does not occur a “lift out” forceps delivery can be performed (see section on forceps delivery)



**SECTION 10 Quiz 10**

1) Which of the following are normal fetal presentations?

- a) Fully flexed vertex
- b) brow
- c) face

ANSWERS:

1. a

**SECTION 10 Quiz 11**

1) Regarding face presentation which of the following statements are correct?

- a) it may be mistaken for breech
- b) is most often obvious early in labour
- c) if the chin is towards the pubis a Caesarean section will always be needed
- d) episiotomy is usually needed for vaginal delivery
- e) if spontaneous delivery of a mento-posterior face does not occur, a 'lift out' forceps delivery can be performed.

ANSWERS:

1. a,d

**Occipito-posterior (OP) position (WHO Pregnancy S-70 to S-72 and S-75)**

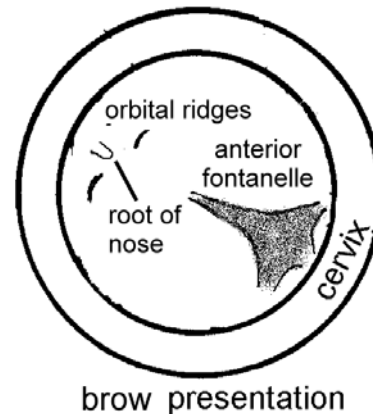
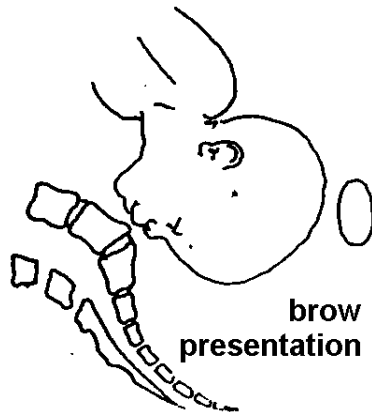
This is common, occurring in up to 20% of laboring mothers.

**Diagnosis**

Abdominal examination may show flattening of the abdomen, difficulty feeling the back, the limbs may be felt anteriorly. Vaginal examination reveals a high deflexed head and the posterior fontanel of the fetal skull is felt towards the sacrum. In mothers with an anthropoid pelvis, for example those from Africa, the OP may be normal and delivery may occur in the OP position. The first stage of labour in mothers with a gynaecoid pelvis (the more common female pelvis shape), may be prolonged and an oxytocin infusion may be required. Assisted delivery is often required. If there is delay in the second stage of labour ventouse is the preferred method of delivery and if available the OP cup should be used. A rotational forceps delivery with the Kiellands forceps should only be undertaken by someone with extensive experience of the procedure. The OP position may cause a positional cephalo-pelvic disproportion and Caesarean Section may be required, particularly if cervical dilation stops.

**Brow presentation (WHO Pregnancy S-73 and S-76)**

This is usually caused by partial extension of the fetal head and may be suspected on abdominal examination as more than half the head is felt above the symphysis on the side of the fetal back. Vaginal examination will reveal the anterior fontanel and bony ridges above the eyes. Unless the head extends further to face presentation, vaginal delivery is not possible and Caesarean Section will be required.



**SECTION 10 Quiz 12**

1) Which of the following statements are true regarding the occipital-posterior position?

- a) It occurs in up to 20% of laboring mothers
- b) may be suspected on abdominal examination when the lower part of abdomen is flattened and the fetal limbs are palpable anteriorly
- c) on vaginal examination the anterior fontanel may be felt easily
- d) may lead to a prolonged first stage of labour
- e) is more likely to lead to assisted delivery than the occipital-anterior position

ANSWERS:

1. a,b,c,d,e

**SECTION 10 Quiz 13**

1) Which of the following statements are true regarding the brow position?

- a) is caused by partial extension of the fetal head, so the sinciput is higher than the occiput
- b) may lead to face presentation later in labour
- c) will allow the anterior fontanel and supra-orbital ridges to be felt on vaginal examination
- d) will lead to Caesarean delivery if presentation remains brow

ANSWERS:

1. b,c,d

**Compound presentation (WHO Pregnancy S-74 and S-78)**

Here more than one part of the fetus is facing the cervix, for example an arm prolapsing alongside the presenting part. It is more common in prematurity. It can be managed expectantly in the early stages of labour in the multiparous patient, with active treatment only being required if there is a delay in the first or second stages of labour.

**Breech presentation (WHO Pregnancy S-74 and S-79)**

At 28 weeks, 20% of babies present by the breech, but most fetuses will turn spontaneously so that only 3-4% will remain breech at term. There is a higher risk with prematurity. Vaginal delivery (although safer for the mother than Caesarean section) carries higher risk of perinatal and neonatal mortality and morbidity due to birth asphyxia and trauma.



extended legs



flexed legs



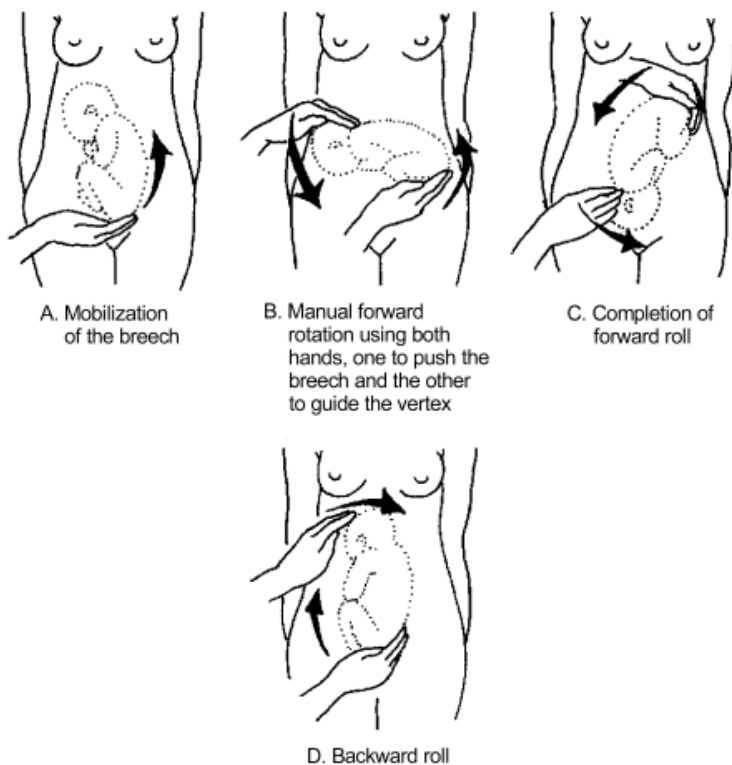
footling



a single footling presentation

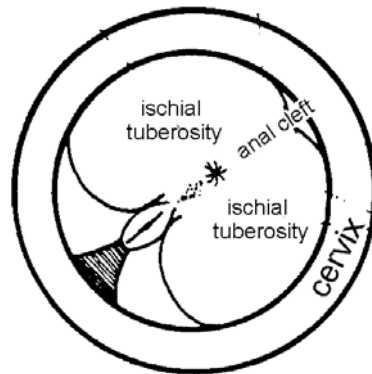
**External cephalic version**

This may be performed between 37 and 42 weeks if there is a single uncomplicated breech pregnancy. There should be no previous uterine scars, previous ante-partum bleeding, fibroids or a placenta praevia. On admission the fetal heart should be monitored. If available, ultrasound should be performed to demonstrate the fetal position, a good amount of liquor, a flexed fetal head and the position of the fetal legs. The mother should be awake and consent to the procedure.



**Procedure: External cephalic version (WHO Pregnancy P-15)**

Tilt the bed head down to allow gravity to assist in disengaging the breech. The mother lies on her side to allow a forward somersault. The abdominal wall should be covered with talcum powder, almond or vegetable oil or ultrasound gel to help to turn the baby. The breech should be disengaged with one hand and an attempt made to turn the baby with the other. No more than three attempts should be made. Whether or not the procedure is successful, the fetal heart should be listened to every 5 minutes for an hour. If the mother is rhesus negative a Kleihauer test should be performed and 500 international units of anti-D administered to the mother IM.



breech presentation

All mothers should be warned about the risks of reduced fetal movements, bleeding, rupture of the membranes or onset of labour. If successful the pregnancy can be managed as a cephalic presentation. If unsuccessful, future management should be discussed and a decision made regarding elective Caesarean Section or trial of vaginal breech delivery.

### Trial of vaginal breech delivery

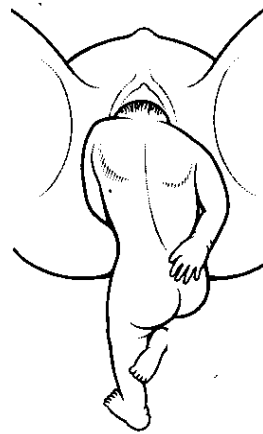
This is appropriate if:

- mother **and** baby are of normal proportions
- presentation of breech is frank (hips flexed, knees extended) or complete (hips flexed, knees flexed but feet not below the fetal buttocks)
- no evidence of fetal-pelvic disproportion: adequate pelvis - using clinical judgment and estimated fetal weight <4000g (clinical measurement)
- no evidence (on ultrasound) of hyper-extension of the fetal head.
- The mother should be counseled and given informed choice
- Inform theatre and the on-call anaesthetist
- Careful fetal monitoring and documentation of the partogram
- Amniotomy may be used to accelerate labour and careful use of oxytocin may be used to correct poor uterine activity if the mother is having her first baby. Oxytocin should not be used for poor progress in a mother who has previously given birth
- Caesarean Section should be considered if there is poor progress or fetal distress
- Ensure an obstetrician with adequate experience in delivering breech babies vaginally is present during the second stage

The basic principles of delivering a breech are those of not interfering

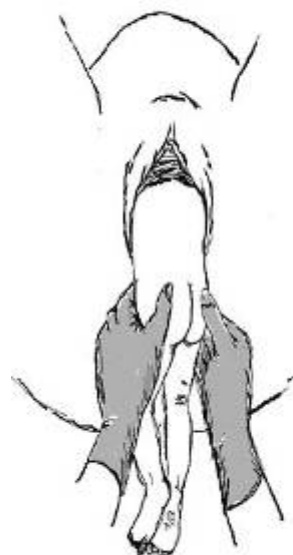
- Active pushing should not be encouraged until the breech has descended to the pelvic floor. Sitting the patient up at this stage may help to encourage descent of the breech. An **episiotomy** may well be required, but should not be performed until the anus is visible. (WHO until baby's buttocks are distending the perineum)
- The breech will usually rotate spontaneously to lie with the sacrum anteriorly. It must be prevented from turning posterior. Extended legs are delivered by flexing the knee joint of the baby and then extending at the hips
- The baby is supported only when the arms are delivered and the nape of the neck becomes visible (avoid holding the baby's abdomen - the pelvis can be held gently)

- As the mother pushes, the anterior shoulder tip will become visible. A finger is run over the shoulder and down to the elbow to deliver the arm. The other shoulder will rotate anteriorly spontaneously to allow similar delivery of the other arm
- The baby lies supported as the head engages and the neck comes into view. Delivery of the head may then be performed by the Maurice-Smellie-Veit manouvre. The right hand is placed into the vagina, the fetus is supported on the right forearm, the middle finger of hand is passed into the baby's mouth and the first and third fingers are placed against the cheekbones. Pressure is applied on the tongue to flex and deliver the head. The left hand is used to press upwards and posteriorly on the back of the fetal head to encourage flexion. Alternatively forceps may be used to achieve the controlled delivery of the head. An assistant should hold the baby's feet to elevate the body above the horizontal to allow the operator access to apply forceps. The nape of the neck must be in view before the baby's body is lifted upwards, or damage to the fetal neck may be caused. If the head fails to descend into the pelvis, that is the nape of the neck does not appear, a symphysiotomy should be considered.



**The baby should be left to hang until the nape of the neck is seen**

### Breech delivery



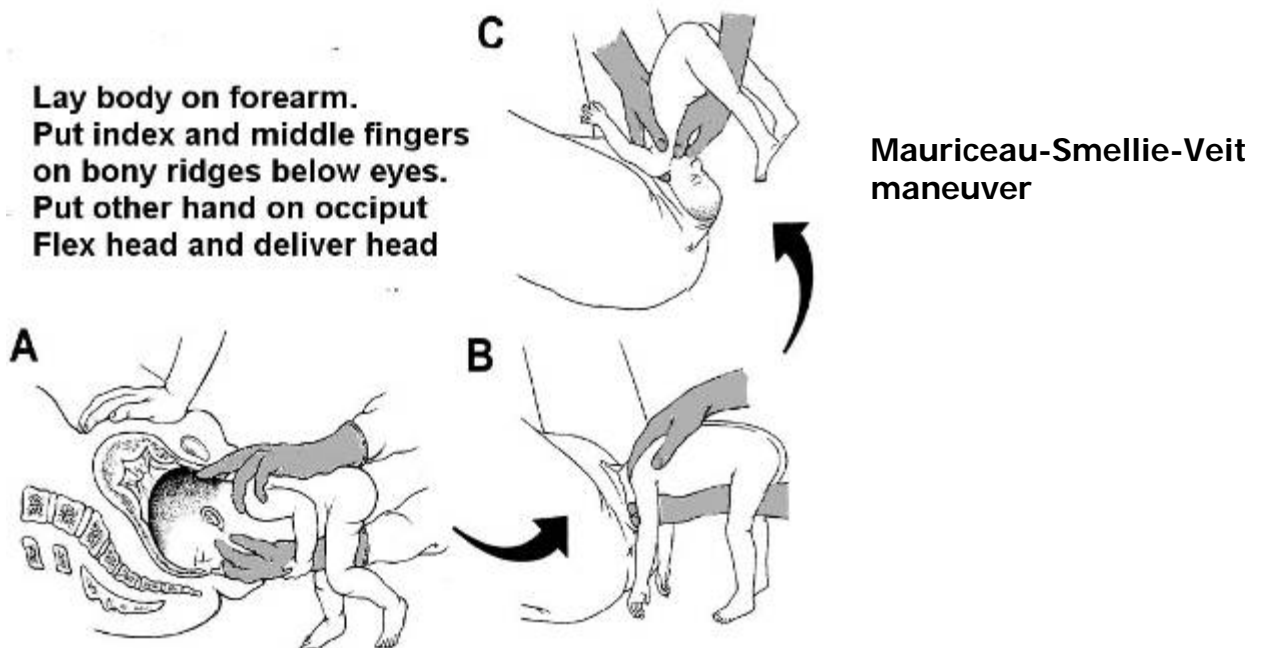
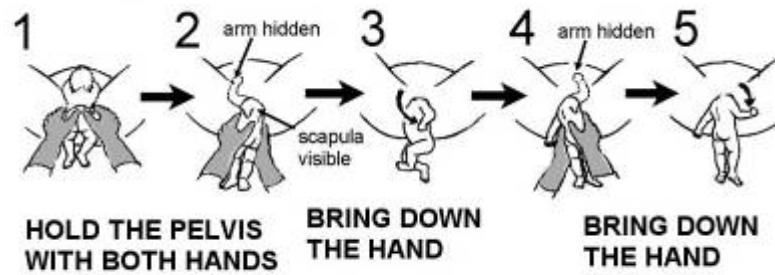
**HOLD THE PELVIS**

### Delivering anterior shoulder



### Delivering posterior shoulder





### Elective Caesarean section

The woman must understand the risks of Caesarean section and the concept of trial-of-scar in a future pregnancy

- Ensure presentation remains breech before anaesthetising the patient.

- Take great care on entering the uterus, the breech is much more likely to be cut than a cephalic presentation
- Make the uterine incision of good size (if too small there can be difficulty delivering the head)

**SECTION 10 Quiz 14**

- 1) Which of the following statements are true regarding external cephalic version for breech presentation?
- it is contraindicated if there has been previous APH
  - 3 attempts should be made at between 34 and 36 weeks gestation
  - should not be performed for 2<sup>nd</sup> twin if transverse lie
  - anti D should be given to the mother if she is rhesus negative and a Kleihauer test is positive
  - if unsuccessful, Caesarean section is the only option
- 2) A Trial of vaginal breech delivery is appropriate under which of the following conditions?
- Mother and baby are of normal proportions
  - presentation of breech is footling
  - oxytocin is not used for poor progress in a mother who is having her first baby
  - an obstetrician with adequate experience in vaginal breech delivery is present at 2<sup>nd</sup> stage
- 3) When delivering a breech which of the following statements are true?
- active pushing should be encouraged to aid descent of the breech to the pelvic floor
  - the baby must be prevented from turning posteriorly
  - the baby is only supported when the arms are delivered and nape of neck is visible
  - the anterior shoulder is delivered by the Mauriceau-Smellie-Veit procedure
  - if the nape of the neck does not appear, a symphysiotomy may be considered

**ANSWERS:**

1. a,d (perform between 37 and 42 weeks) 2. a,d 3. b,c,e

**Transverse and Oblique Lies (WHO Pregnancy S-75 and S-81)**

**Background**

These are particularly associated with prematurity, uterine fibroids, and placenta praevia and consequently are associated with high maternal and fetal morbidity. Always try to identify the underlying pathology.

The resulting presentation of shoulder, limb or cord means that Caesarean section is the only option for delivering a viable infant. If the fetus is dead, unless it is very small and macerated, it is safer to perform a destructive procedure (see CD/DVD rom)

**Practical points to remember**

- Try to identify the cause of the abnormal lie (ultrasound)
- Positively exclude placenta praevia with ultrasound before conducting digital vaginal examinations
- Caesarean section can be extremely difficult:
  - The lower segment will be poorly formed
  - Fibroids when present can distort anatomy and inhibit access
  - Placenta praevia is associated with severe haemorrhage

- A vertical uterine incision may be most appropriate for above reasons
- Keep the membranes intact while making and extending the uterine incision as this helps with manipulating the fetus into a longitudinal plane for delivery
- If there is any difficulty in delivering a fetal head or breech then find, grasp and bring down a foot (recognisable by the heel) into the wound.
- If delivery is still impossible the uterine incision can be extended.

**SECTION 10 Quiz 15**

1) Transverse and oblique lies are associated with which of the following?

- a) a high maternal morbidity
- b) a high fetal morbidity
- c) uterine fibroids
- d) placenta praevia
- e) Caesarean section, as this is the only option for delivery of a live and well infant

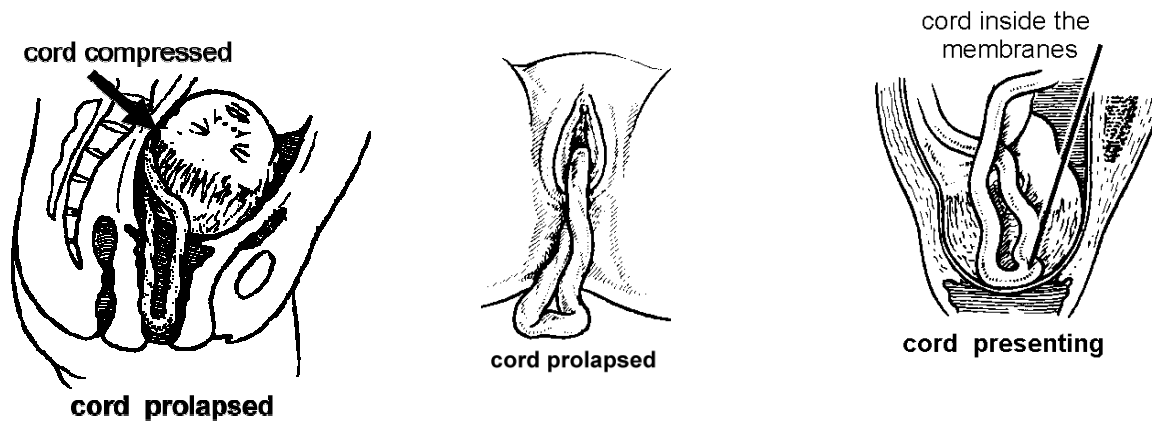
2) When performing Caesarean section for transverse lie which of the following statements are true?

- a) a vertical uterine incision may be more appropriate than a transverse
- b) placenta praevia is associated with severe haemorrhage
- c) it is often easier to manipulate the fetus into a longitudinal plane for delivery after the membranes have been ruptured
- d) bringing a foot into the wound can help to deliver the baby

**ANSWERS:**

1. a,b,c,d,e    2. a,b,d

## Prolapsed umbilical cord (WHO Pregnancy S-97)



### Incidence

This occurs in approximately 0.2% of all births, mostly in multiparous mothers. There is significant risk of fetal death due to mechanical compression of the cord and spasm of the cord vessels when exposed to cold.

### Risk factors for prolapsed cord

The presenting part does not remain in the lower uterine segment due to:

#### *Fetal Causes*

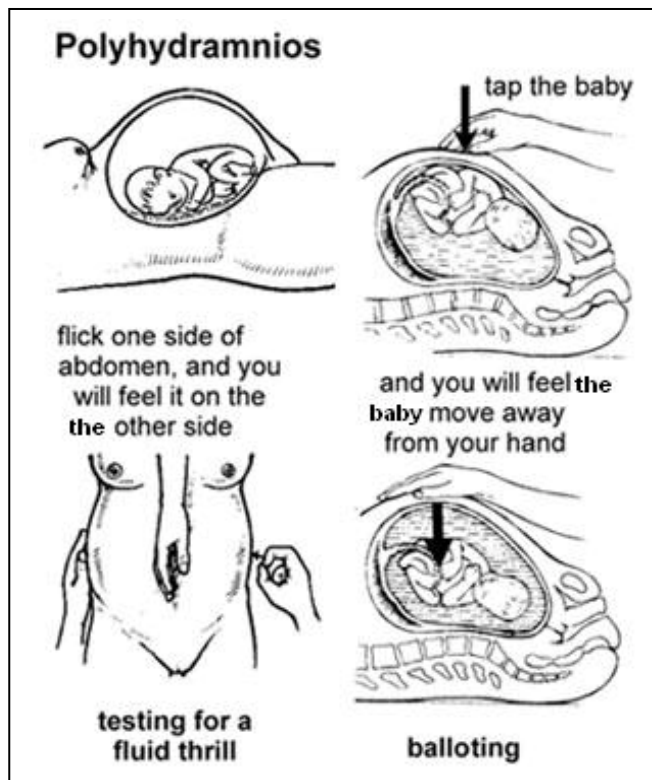
- Malpresentations: for example: complete or footling breech, transverse and oblique lie.
- Prematurity or low birth weight
- Polyhydramnios
- Multiple pregnancy
- Anencephaly

#### *Maternal Causes*

- Contracted pelvis
- Pelvic tumours

#### *Other Predisposing Factors*

- Low grade placenta praevia
- Long cord
- Sudden rupture of membranes in polyhydramnios

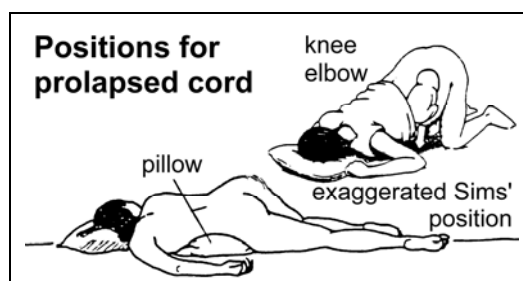


**Management**

1

**ASSESS VIABILITY**

If the baby is alive and of a viable gestation (the cord will be pulsating and the fetal heart sounds heard), elevate the presenting parts and ensure rapid delivery. Give the mother 100% oxygen to breathe and place in the knee elbow or left lateral tilt position.

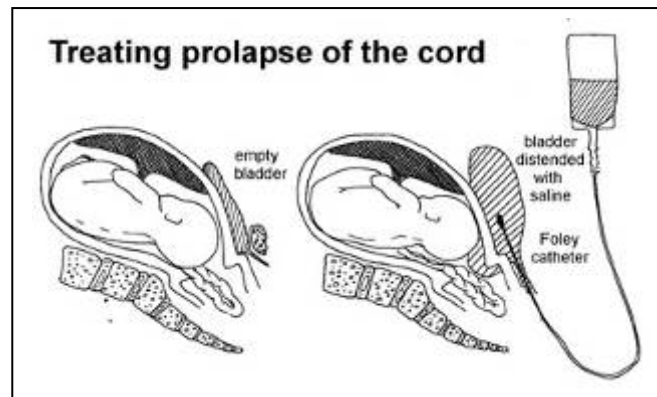


The interval between diagnosis and delivery is significantly positively correlated with still birth and neonatal death. If the baby is dead, deliver in the safest way for the mother.

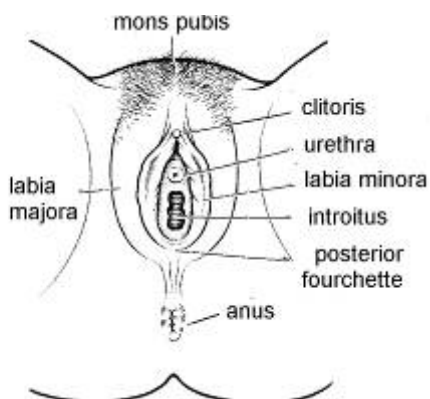
**2 RELIEVE COMPRESSION**

- a) knee chest or Trendelenburg positioning and manual elevation (using high level sterile gloves) of the presenting part above the pelvic inlet to relieve compression. Ensure sterile procedures including cleaning the perineum.
- b) prepare for emergency Caesarean section, assuming that this can safely be undertaken
- c) fill the bladder to raise the presenting part off the compressed cord for an extended period of time, allowing the operator to remove his or her fingers from the presenting part. Insert sufficient 0.9% saline so that the distended bladder

appears above the pubis: 500 ml is usually sufficient. Inflate the balloon of the foley catheter, clamp it and attach drainage tubing and urine bag. The full bladder may also decrease or inhibit uterine contractions. The bladder must be emptied by unclamping the catheter before opening the peritoneal cavity for Caesarean section. Mark the abdomen to show the bladder is inflated.



### *Urethral Catheterisation*



#### **Methods:**

Use appropriate size of catheter i. e. one that is smaller in diameter than the external urethral meatus (to minimise risk of subsequent urethral stricture formation). Do not attempt to use a tube larger than the meatus. Sterile lubricant should be used.

Use sterile precautions (gloves etc), wash area with antiseptic, catheter bag if available, syringe of 0.9% saline to inflate balloon if is Foley balloon catheter and an assistant to hold legs

apart. No need for force. Catheter is in sufficiently far when urine is seen in tube.

### **3 SUPPORT MOTHER AND BABY**

- a) give mother 100% oxygen to breath (face mask and reservoir)
- b) discontinue any oxytocin infusion
- c) ensure IV access

### **4 DELIVER BABY**

- a) Cord prolapse at full cervical dilatation with a live viable fetus is an indication for using a ventouse with an un-engaged head. If ventouse is not available and the head is engaged forceps may be used.
- b) if the cervix is not fully dilated Caesarean section if safe will be required. At skin incision the bladder clamp must be released and the bladder emptied.

**SECTION 10 Quiz 16**

**1) Risk factors for cord prolapse include which of the following?**

- a) prematurity
- b) low grade placenta praevia
- c) polyhydramnios
- d) long cord
- e) small pelvis

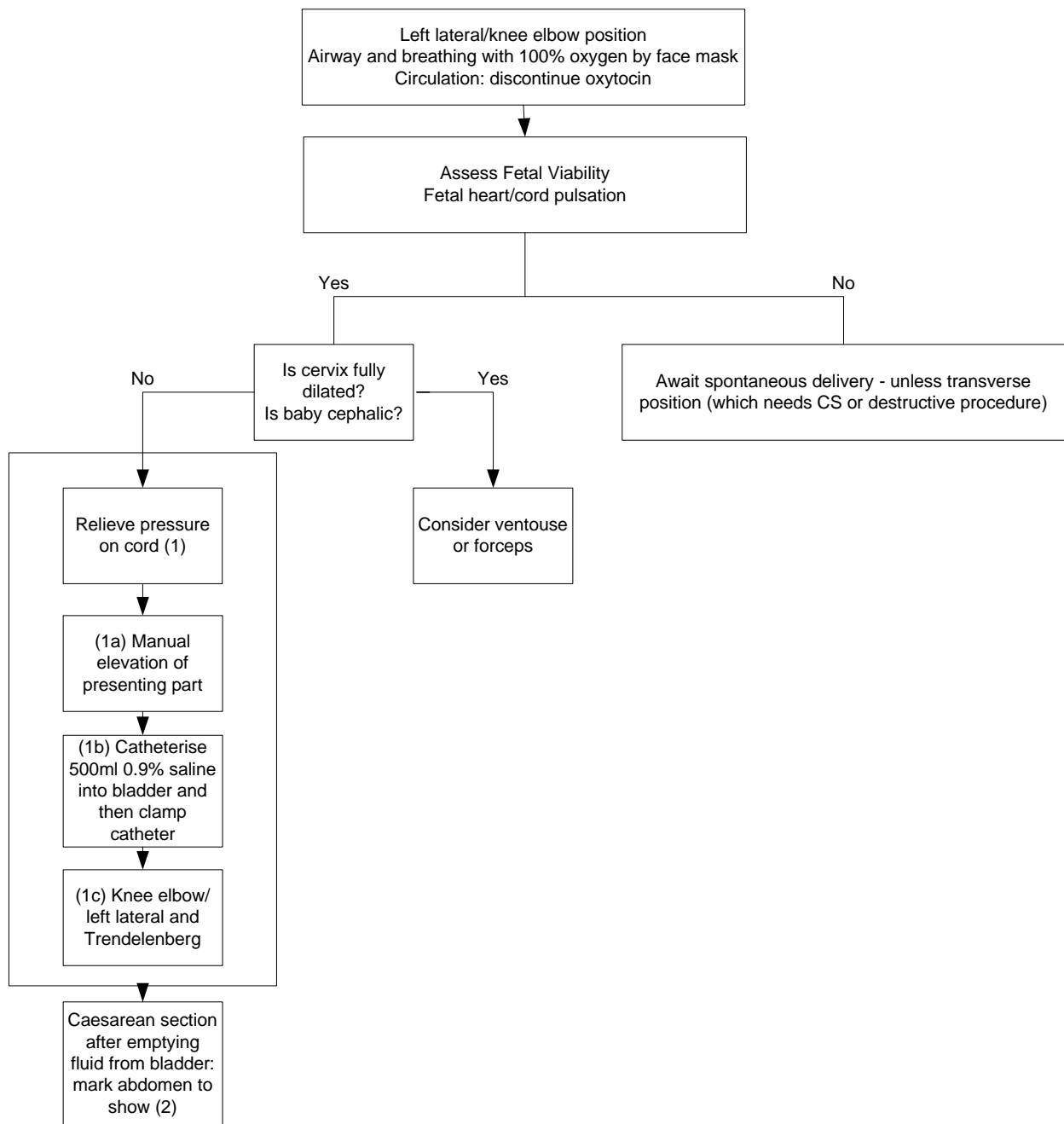
**2) Management of cord prolapse includes which of the following?**

- a) assessing fetal heart and/or cord pulsation
- b) giving mother 100% oxygen to breathe
- c) considering assisted vaginal delivery if cervix is fully dilated
- d) Catheterisation of the bladder and instilling 500 ml of 0.9% saline into bladder
- e) Caesarean section after releasing bladder clamp at skin incision
- f) Left lateral tilt position

**ANSWERS:**

**1. a,b,c,d,e    2. a,b,c,d**

## Pathway of Care Prolapsed Cord



## Symphisiotomy

This procedure may aid with difficult deliveries and avoid the risk of Caesarean Section and its associated risks of uterine rupture in a further pregnancy. Indications for symphisiotomy include:

- a trapped after-coming head of a breech
- severe cases of shoulder dystocia that have not been helped with routine manoeuvres
- cephalo-pelvic disproportion with a vertex presentation and a living fetus when at least one-third of the fetal head has entered the pelvic brim and where Caesarean Section is not possible. Forceps or ventouse deliveries are not suitable in this circumstance.

### The cervix must be fully dilated

#### Technique

- Place the mother in the lithotomy position with her legs supported by two assistants. It is important that the legs should be well supported and not allowed to move too far apart, (an angle of not more than 80 degrees between the legs) to avoid strain to the joints between the sacrum and the pelvic bones
- Local anaesthetic is injected into the skin and the symphysis pubis. This helps to identify the joint space and the needle can be left in place to guide the rest of the procedure
- Insert a urinary catheter
- Push the catheter and urethra aside to the mother's right with the index and middle fingers of the left hand in the vagina. The index finger pushes the catheter and urethra to the side and the middle finger remains on the back of the pubic joint to monitor the scalpel
- Incise the symphysis pubis in the midline at the junction of the upper and middle thirds. The point of the scalpel will be felt impinging on the vagina by the underlying finger of the left hand. The upper third of the uncut symphysis is used as a fulcrum against which the scalpel is levered to incise the lower two thirds of the symphysis. The scalpel is then removed and rotated through 180° and the remaining upper third of the symphysis is cut.
- Beware as the symphysis joint cuts very easily
- Take great care not to go too deep which can damage the vagina or urethra
- After the symphysis has been cut, the joint should open as wide as the operator's thumb
- After perineal local anaesthetic cut a generous episiotomy to relieve tension on the front wall of the vagina
- If further assistance is needed to deliver the head, use a vacuum extractor.
- Deliver the **head and trunk** of the baby in a **downwards** direction (take care not to lift the baby up until it is completely delivered, and keep the legs supported).
- After delivery of the baby and placenta, press the joint between the thumb above and first and second fingers below for some minutes to express blood clots.
- Repair the episiotomy and any other tears with the legs still supported
- Leave the urinary catheter in place for 3 to 5 days and give prophylactic antibiotics to prevent urinary tract infection.
- The patient should be nursed in bed on her side as much as possible with her knees strapped loosely together for three days. After this, mobilisation can begin. Prophylactic LWMH heparin should be considered (see CD/DVD rom).



**SECTION 10 Quiz 17**

1) Regarding symphysiotomy which of the following statements are true?

- a) it is indicated early in the management of shoulder dystocia
- b) the cervix must be fully dilated
- c) the mother's legs should be as widely apart as possible
- d) damage to the urethra is a risk
- e) the symphysis joint is difficult to cut
- f) an episiotomy should also be used to aid delivery
- g) a urinary catheter should remain in place for 3 - 5 days and prophylactic antibiotics given

**ANSWERS:**

1. b,d,f,g

**Destructive procedures (IMEESC 11.4)**

These have a role in cases of obstructed labour, particularly if there has been poor or absent care antenatally or in labour. They may be particularly useful in the management of a dead baby if the risks to the mother of Caesarean Section are thought to be too great. Maternal mortality after destructive operations is low but there is a high maternal death rate if Caesarean Section is undertaken in a woman with severe sepsis, shock or anaemia. Before the procedure is undertaken, it must be explained to the mother and if possible it is kinder to administer a spinal or general anaesthetic. As urinary and genital tract infections are common, antibiotic prophylaxis should be used. The genital tract and rectum must be carefully examined after the procedure to ensure that no injury has occurred from the trauma of delivery, the use of sharp instruments, or spikes of bone. The three most common destructive procedures are:

1. **Craniotomy (WHO Pregnancy P-57)**

**Indications**

For the delivery of a dead fetus in situations of obstructed labour resulting from cephalo-pelvic disproportion and hydrocephalus

**Method**

- Place a urinary catheter and administer a suitable analgesic
- The fetal head should be no more than 3/5 above the pelvic brim and the cervix should be at least 4cm dilated. In cases of hydrocephalus, the procedure is suitable even if the head is very high
- Under most circumstances it is better to deliver through a fully dilated cervix to prevent tears.
- Ask an assistant to steady the head from above the symphysis pubis
- Perforate the skull, preferably by the anterior fontanel, using a Simpson's perforator with the instrument at right angles to the surface of the skull. The perforator can be inserted through bone if necessary
- Push the blades as far as their shoulders and separate, first in one direction. Turn the instrument through 90° and open the blades again.
- Evacuate the brain and allow drainage of cerebro-spinal fluid in cases of hydrocephalus. Deliver the fetal head by pulling on the skull by using volsellum forceps

and counter-traction. The volsellum may be attached to a weight for example a 1 litre bag of IV fluid using a bandage to allow a slower delivery.

- Occasionally with a large baby, division of the clavicle may also be required

In the **after-coming head of a breech** this should only be performed if the baby is already dead or not expected to survive because of congenital anomalies e.g. spina bifida and hydrocephalus. A similar procedure can be performed by inserting the Simpson's perforator through the posterior fontanelle or perforation of the base of the skull.

## 2. Decapitation

### Indications

For cases of neglected obstructed labour with a shoulder presentation AND an oblique or transverse lie and the fetus is already dead.

### Method

- If the fetus is small and the neck can be easily felt, it may be severed with stout scissors. If the neck is not easily accessible, the Blond-Heidler decapitation tool is the safest instrument.
- The cervix should be at least 7cm dilated and the fetal neck accessible on vaginal examination.
- If possible, an arm is grasped and brought down to be held by an assistant to make the neck more accessible.
- Thread the saw around the fetal neck and keep the handles attached to the ends of the saw close together. The neck is severed after a few firm strokes. Deliver the trunk by traction on the arm with the operator's hand protecting the vagina from cuts from spikes of bone.
- Deliver the after-coming head by grasping the stump with a heavy volsellum. The head can then be brought down and delivered by the Mauriceau-Smellie-Veit manoeuvre as previously described for a breech delivery.
- Skin sutures should be used to restore the anatomy before the baby is wrapped to be shown to the parents.